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Alberta
ENERGY

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Alberta
ENERGY

Office of the Minister

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January 5, 1988

The Honorable Helen Hunley
Lieutenant Governor of the Province of Alberta

Your Honor:

I have the honor to submit the Annual Report of Alberta Energy for the fiscal year ended March 31, 1987.

Respectfully submitted,

Neil Webber

Neil Webber
Minister of Energy

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Minister's Message

The year 1986/87 was a transition year for the oil and gas industry in Alberta. Firstly, the Government of Alberta and the industry in the province both had to respond to changes in the international oil market. By the end of the year, both government and industry had adapted to the changed energy environment and activity and confidence were returning. Secondly, during the year the process of transition to market-responsive pricing for natural gas continued. Substantial progress was made toward the objective of natural gas deregulation.

At the end of the previous year, international oil prices dropped dramatically, reducing industry revenues, investment and activity levels. Natural resource revenues accruing to the Alberta Government also dropped dramatically, to approximately $2.4 billion in 1986/87 from $5.6 billion in 1985/86.

The major challenge during 1986/87 was to evaluate international developments and to assess the position of the Alberta-based industry in order to make policy changes so that the industry would continue to have the economic incentive to explore for and develop oil and gas within the province.

The government responded in a series of steps. At the beginning of the year my predecessor, the Honorable John Zaozirny, announced two measures worth an estimated $400 million designed to provide immediate assistance to the industry in withstanding the price downturn and maintaining activity levels: enhancement of the Alberta Royalty Tax Credit and the Exploratory Drilling Assistance Program.

Following my appointment as Minister of Energy, I announced, on June 4, three additional short-term programs providing a further $200 million of assistance: the Development Drilling Assistance Program, the Well Servicing Assistance Program, and the Geophysical Assistance Program.

By the fall, the extent of the longer term fiscal adjustments required to sustain industry activity were clear. On October 29, Premier Don Getty and I announced a $1 billion assistance package reducing royalty rates, and implementing a new incentive program of five-, three- and one-year royalty holidays. The combination of short- and long-term incentives announced during the year resulted in a dramatic upturn of activity in December.

In addition to the individual measures taken by the provincial government, I was involved in discussions with my federal colleague, the Honorable Marcel Masse, concerning the need for a response to the downturn in the industry. The federal government announced the phase out of the Petroleum and Gas Revenue Tax ahead of schedule and, at the end of the fiscal year, announced a new grant program, the Canadian Exploration and Development Incentive Program.

During the last quarter of the year, spot crude oil prices settled briefly around the $18 US to $19 US range, as OPEC announced a new strategy on oil pricing and production.

The combination of changes to the fiscal regime, OPEC's pricing strategy and the restructuring and efficiency gains realized by the oil and gas industry, resulted in improved economic returns from industry activity in Alberta. The fiscal year concluded with a significant degree of confidence in the Alberta oil and gas industry, indicated by a surge in interest in land sales. The confidence has grown during 1987 and has been demonstrated through increased investment and drilling activity in the new year.

The decline in international oil prices also had an impact on heavy oil and oil sands development. During the year the Alberta Government took measures to maintain industry activity in developing these vital resources.

On April 8, 1986, the Governments of Alberta, Saskatchewan and Canada signed an agreement to provide financial assistance to Husky in carrying out $90 million worth of engineering on the Husky Bi-Provincial Upgrader.

Also at the beginning of the year, Premier Getty announced a funding arrangement to permit continuation of the basic engineering and planning for the 80 000 barrels per day, $4 billion Syncrude Expansion Project. Cost of engineering for the project was $85 million.

At the same time, the Premier announced a temporary reduction of Suncor's royalty from approximately 12 per cent to one per cent. The measure provided in the order of $35 million of assistance to Suncor operations during the fiscal year.

In December, I announced that the Alberta Government would provide a loan of up to $200 million should it be required to cover any net cash flow deficiencies to Syncrude during 1987 and 1988. This loan facility permitted continuation of Syncrude's Capacity Addition Project on a schedule for completion by the end of 1988.

During the year substantial progress was made on reducing the operating costs of Suncor and Syncrude to maintain profitability in an environment of lower energy prices. The dramatic decline in actual costs, coupled with new and reduced projections of costs of proposed oil sands plants, and stabilization of oil prices, resulted in renewed interest in oil sands development during the last quarter of the fiscal year and into the new year.

Overall, substantial progress was made toward the objective of natural gas deregulation in 1986.

At the end of October 1986, Mr. Masse and I reviewed progress on deregulation and exchanged letters dealing with the need for further change in the natural gas protection procedures administered by the National Energy Board (NEB) and the Energy Resources Conservation Board (ERCB).

After conducting hearings on their respective surplus tests, new procedures were announced by the ERCB in March, and by the NEB in September 1987. These changes will provide greater market opportunities for Alberta gas producers over the longer term.

During the year, the Alberta Government passed four acts essential to the process of deregulation: the Arbitration Amendment Act, the Natural Gas Marketing Act, the Gas Resources Preservation Act and the Take or Pay Costs Sharing Act.

The year was full of challenges - to the industry and to government. Throughout the year the department not only had to respond to the two major challenges of oil pricing and natural gas deregulation but had to fulfil the variety of responsibilities resulting from Alberta's resource ownership and position as the major oil, gas and coal producing province in Canada. Departmental staff performed admirably and I thank them all for their dedication and professionalism.

The Department

The Alberta Department of Energy is responsible for managing the province's energy resources. It applies sound management practices to encourage development of these resources and obtain a fair return of revenue to the province.

In carrying out its mandate, the department administers several acts governing the development of energy resources, including:

- Mines and Minerals Act
- Mineral Titles Redemption Act
- Freehold Mineral Rights Tax Act
- Petroleum Incentives Program Act.

Organization

The department is organized into two sectors: Energy Resources and Finance and Administration (Figure1).

Energy Resources is made up of five divisions: Policy Analysis and Planning, Mineral Resources, Scientific and Engineering Services, Petroleum Incentive Programs, and Legal Services.

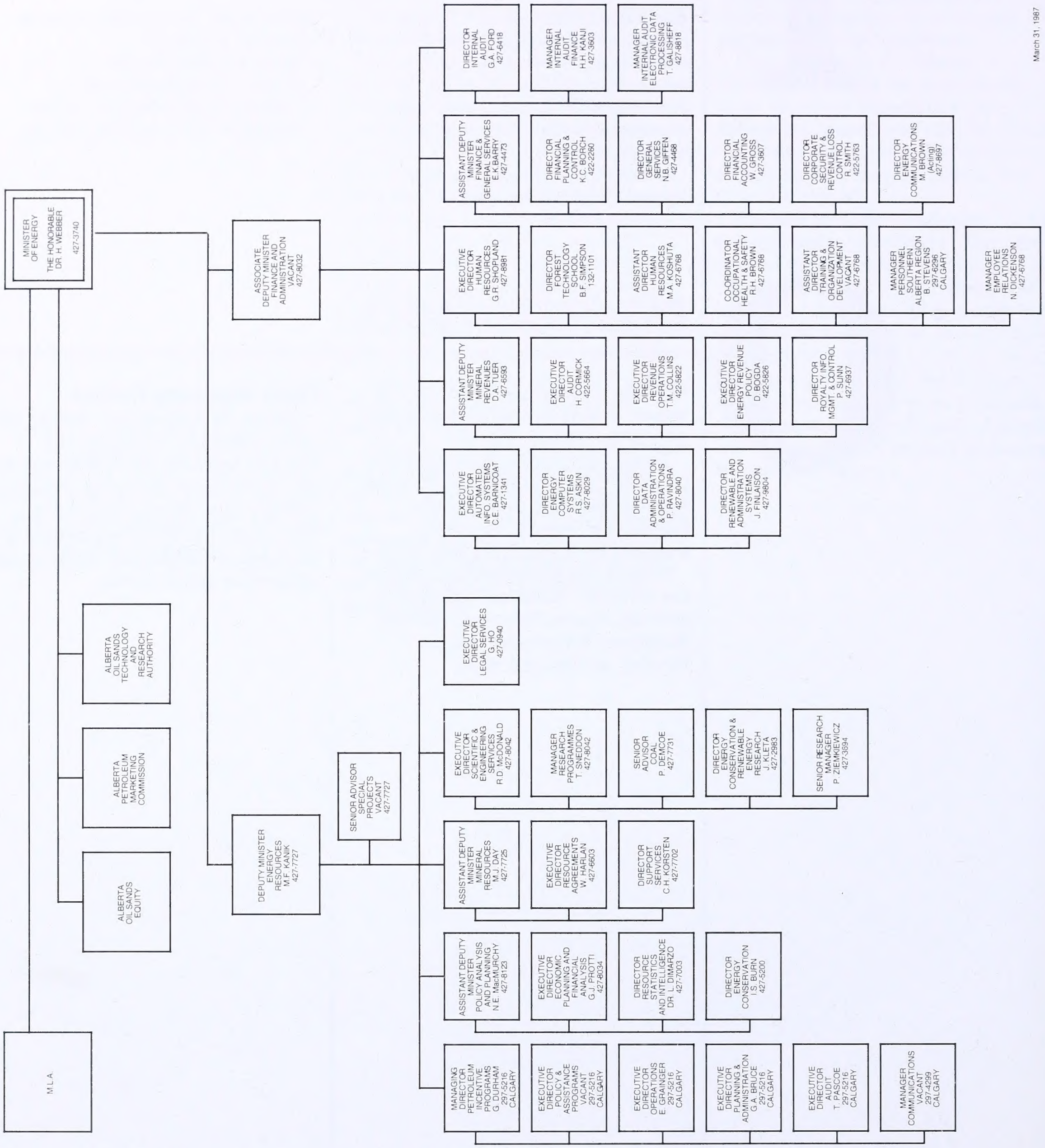
Finance and Administration contains five divisions: Automated Information Systems, Mineral Revenues, Human Resources, Finance and General Services, and Internal Audit.

Other Reporting Entities

Alberta Oil Sands Equity (AOSE), the Alberta Oil Sands Technology and Research Authority (AOSTRA), and the Alberta Petroleum Marketing Commission (APMC) report directly to the minister. The activities of AOSE are contained in this report. AOSTRA and APMC produce independent annual reports.

ALBERTA DEPARTMENT OF ENERGY

Figure 1 - ORGANIZATION CHART


MINISTER OF ENERGY THE HONORABLE DR. H. WEBBER 427-3740
M.L.A.
ALBERTA OIL SANDS TECHNOLOGY AND RESEARCH AUTHORITY
ALBERTA PETROLEUM MARKETING COMMISSION
ALBERTA OIL SANDS EQUITY
ASSOCIATE DEPUTY MINISTER FINANCE AND ADMINISTRATION VACANT 427-8032
DIRECTOR INTERNAL AUDIT G.A. FORD 427-6418
MANAGER INTERNAL AUDIT FINANCE H.H. KANJI 427-3603
MANAGER INTERNAL AUDIT ELECTRONIC DATA PROCESSING T. GALISHEFF 427-8818
ASSISTANT DEPUTY MINISTER FINANCE & GENERAL SERVICES E.K.BARRY 427-4473
DIRECTOR FINANCIAL PLANNING & CONTROL K.C. BORCH 422-2260
DIRECTOR GENERAL SERVICES N.B. GIFFEN 427-4468
DIRECTOR FINANCIAL ACCOUNTING W. GROSS 427-3607
DIRECTOR CORPORATE SECURITY & REVENUE LOSS CONTROL R. SMITH 422-5763
DIRECTOR ENERGY COMMUNICATIONS M. BROWN (Acting) 427-8697
EXECUTIVE DIRECTOR HUMAN RESOURCES G.R. SHOPLAND 427-8981
DIRECTOR FOREST TECHNOLOGY SCHOOL B.F. SIMPSON 132-1101
ASSISTANT DIRECTOR HUMAN RESOURCES M.A. KOSHUTA 427-6768
CO-ORDINATOR OCCUPATIONAL HEALTH & SAFETY R.H. BROWN 427-6768
ASSISTANT DIRECTOR TRAINING & ORGANIZATION DEVELOPMENT VACANT 427-6768
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MANAGER EMPLOYEE RELATIONS N. DICKENSON 427-6768
ASSISTANT DEPUTY MINISTER MINERAL REVENUES D.A. TUER 427-6593
EXECUTIVE DIRECTOR AUDIT H. CORMICK 422-5664
EXECUTIVE DIRECTOR REVENUE OPERATIONS T.M. COLLINS 422-5822
EXECUTIVE DIRECTOR ENERGY REVENUE POLICY D. BOGDA 422-5826
DIRECTOR ROYALTY INFO. MGMT. & CONTROL P. SUNN 427-6937
EXECUTIVE DIRECTOR AUTOMATED INFO. SYSTEMS C.E. BARNICOAT 427-1341
DIRECTOR ENERGY COMPUTER SYSTEMS R.S. ASKIN 427-8029
DIRECTOR DATA ADMINISTRATION & OPERATIONS P. RAVINDRA 427-8040
DIRECTOR RENEWABLE AND ADMINISTRATION SYSTEMS J. FINLAISON 427-9804
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EXECUTIVE DIRECTOR LEGAL SERVICES G. HO 427-0940
EXECUTIVE DIRECTOR SCIENTIFIC & ENGINEERING SERVICES R.D. McDONALD 427-8042
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SENIOR ADVISOR COAL P. DEMCOE 427-7731
DIRECTOR ENERGY CONSERVATION & RENEWABLE ENERGY RESEARCH J. KLETA 427-2983
SENIOR RESEARCH MANAGER P. ZIEMKIEWICZ 427-3694
ASSISTANT DEPUTY MINISTER MINERAL RESOURCES M.J. DAY 427-7725
EXECUTIVE DIRECTOR RESOURCE AGREEMENTS W. HARLAN 427-6603
DIRECTOR SUPPORT SERVICES C.H. KORSTEN 427-7702
ASSISTANT DEPUTY MINISTER POLICY ANALYSIS AND PLANNING N.E. MacMURCHY 427-8123
EXECUTIVE DIRECTOR ECONOMIC PLANNING AND FINANCIAL ANALYSIS G.J. PROTTI 427-8034
DIRECTOR RESOURCE STATISTICS AND INTELLIGENCE DR. L. DIMARZO 427-7003
DIRECTOR ENERGY CONSERVATION I.S. BURN 427-5200
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EXECUTIVE DIRECTOR POLICY & ASSISTANCE PROGRAMS VACANT 297-5216 CALGARY
EXECUTIVE DIRECTOR OPERATIONS E. GRAINGER 297-5216 CALGARY
EXECUTIVE DIRECTOR PLANNING & ADMINISTRATION G.A. BRUCE 297-5216 CALGARY
EXECUTIVE DIRECTOR AUDIT T. PASCOE 297-5216 CALGARY
MANAGER COMMUNICATIONS VACANT 297-4299 CALGARY

March 31, 1987

Overview

With Alberta's energy sector experiencing one of its most difficult periods in recent times, the fiscal year 1986/87 posed major challenges for the department.

Volatile prices and general uncertainty characterized the year and these factors adversely affected the oil and gas industry. An oversupply of oil on the international market caused the price to plunge from $33 per barrel in January 1986 to $14.60 per barrel in July. Gradually, over a period of months, the price stabilized in the $17-$19 range.

The sharp decline in oil prices, plus uncertainty about the future, forced oil companies to cut back on expenditures and investment (Figure 2). As a result, industry activity dropped substantially below the 1985/86 level. Selected industry indicators reflect the slowdown (Figure 3).

For the department, the main challenge was to ensure the viability of the industry. Several measures - temporary assistance programs and incentives, plus royalty reductions and royalty holidays - were introduced or extended to stimulate activity in the short term as well as promote development over a longer period. Special attention was paid to the problems faced by small producers.

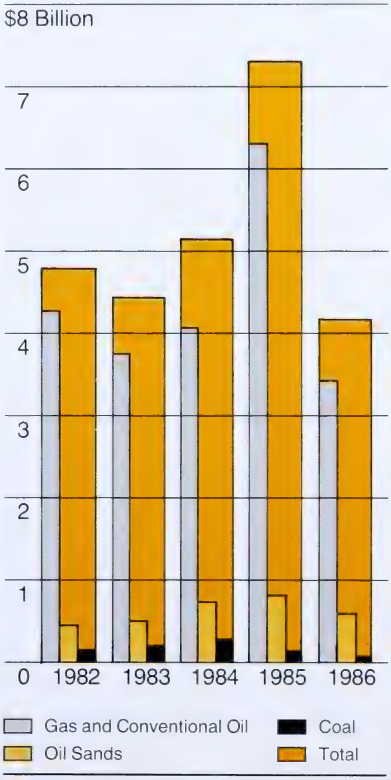
At the same time, the department continued to focus on Canada's energy security in the future, which was a major theme in meetings with the federal government and other provinces. Alberta participated with other governments in a task force studying, among other things, what can be reasonably done to bring on new oil supplies to prevent Canada from becoming dependent on foreign sources in the 1990s.

In the natural gas sector, the department carried through with its deregulation program. A great deal of attention was devoted to marketing issues as the industry, faced with a domestic gas surplus, began adapting to deregulation and changes in contractual relationships. Through legislative and other initiatives the department moved to ease the industry's transition to a marketing system based on negotiations between buyers and sellers.

In the coal sector, the department provided leadership in research, development and the pre-commercial demonstration of new technologies to assist the Alberta coal industry. These include improvements which affect mine site and transportation costs, and burning quality. Results should enhance the commercial attractiveness of Alberta coal in Eastern Canada and in international markets. The department also supported research into industrial and commercial energy conservation.

In this report major departmental activities, including activities aimed at promoting technology development as well as developing and implementing programs on the efficient use of energy, are described under seven broad categories: policy initiatives; mineral resource management; research and technology development; Alberta Oil Sands Equity; energy conservation; mineral revenues; and departmental support services.

Figure 2
Energy Investment in Alberta

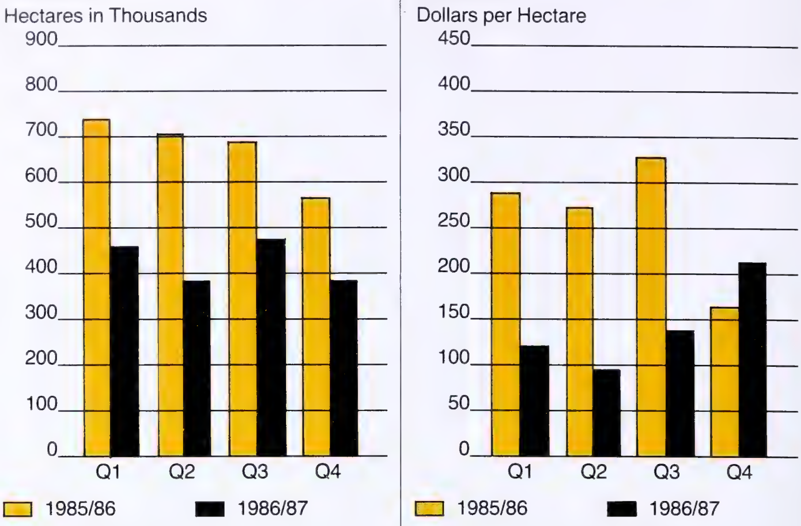


Sources: 1982 through 1985 - Canadian Petroleum Association Statistical Handbook; 1986 - Oilweek Annual Review and Forecast (Feb. 2, 1987, page 23); Coal - Statistics Canada Catalogue #61205.

Figure 3 - Selected Industry Indicators

Hectares Sold Quarterly

Average Price per Hectare Quarterly

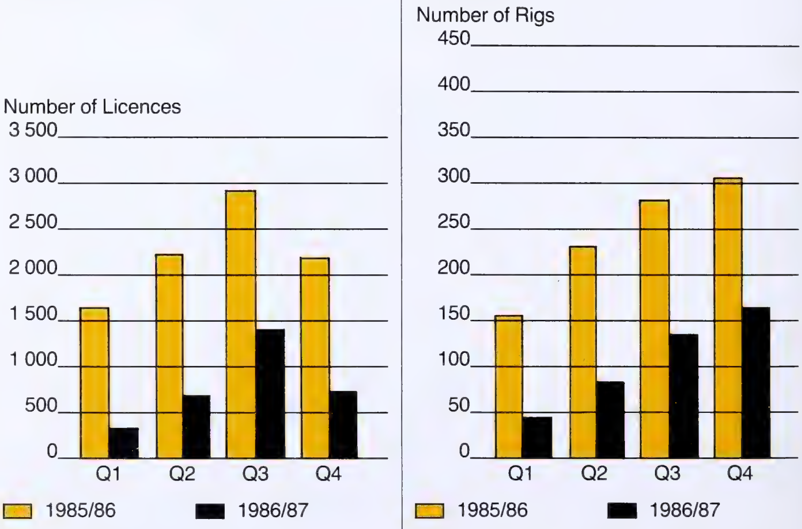


Source: Mineral Resources Division

Source: Mineral Resources Division

Well Licences Issued Quarterly

Rigs Drilling in Alberta Quarterly



Source: ERCB

Source: Canadian Association of Oilwell Drilling Contractors

Policy Initiatives

Policy initiatives throughout 1986/87 were directed at two primary goals: to mitigate the consequences of depressed world prices, and to ensure that in the future the industry would be able to take advantage of the province's rich resource base and proximity to markets. Initiative highlights are listed in Figure 4. Generally, they were of three types: to encourage investment and employment in the conventional oil and gas sector, thus minimizing the impact of the corporate spending cuts; to encourage development of non-conventional oil resources and security of supply to strengthen the long-term outlook for the industry; and to implement and further the process of natural gas deregulation, thereby fulfilling the government's commitment to deregulation of markets and prices. Each of these is described below.

Conventional Oil and Gas Exploration and Development Policy Initiatives

Effective April 1, 1986, the Alberta Royalty Tax Credit program (ARTC) was increased (Figure 5). At that time, the Exploratory Drilling Assistance Program (EDAP) was introduced to prevent a marked cutback in exploration activity and jobs across the province. On June 3, 1986, further initiatives - the Development Drilling Assistance Program (DDAP), the Well Servicing Assistance Program (WSAP) and the Geophysical Assistance Program (GAP) - were introduced to improve industry cash flow and to stimulate activity and employment in the drilling, service and geophysical sectors. Following industry consultation, the government extended DDAP and WSAP on Oct. 15, 1986, so that all assistance programs would expire on Dec. 31, 1986.

The new temporary assistance programs, administered by the Petroleum Incentive Programs Division, were expected to inject $500 million into the industry. These programs and the Alberta Petroleum Incentives Program are summarized in Figure 6, along with 1986/87 highlights.

On Oct. 29, 1986, the Oil and Gas Activity Incentives Program, valued at $1 billion, was announced. This program was intended to strengthen the energy sector, stimulate activity and investment,

Figure 4 - Policy Initiative Highlights

• April	The Exploratory Drilling Assistance Program (EDAP) and the Alberta Royalty Tax Credit Enhancement were introduced. EDAP provided stimulation to exploration activity and employment, while the Alberta Royalty Tax Credit provided tax breaks for small producers.
• April	In the interest of bringing on major new supplies of oil by 1990, the government provided a loan guarantee for Shell Solvex (an oil sands solvent extraction project); assistance to Husky Oil for a bi-provincial upgrader; a reduction in the Suncor Oil sands plant royalty; and assistance to Syncrude Canada Ltd. by funding a preliminary engineering study on potential plant expansion.
• June	The Development Drilling Assistance program, the Well Servicing Assistance program and the Geophysical Assistance program short-term initiatives were introduced to further stimulate activity and employment.
• October	Revised royalty holidays, royalty reductions and increased royalty tax credits were announced in the Oil and Gas Activity Incentives Program, valued at $1 billion.
• December	The government announced it would provide loan assistance to the Syncrude Capacity Addition Program, with the objective of increasing production by 20 000 barrels per day (b/d).

create jobs and contribute to Canada's energy security by bringing on major new supplies of oil by 1990. The package contained the Crude Oil Royalty Holiday Program (CORHP), a reduction in royalty rates and an enhancement of the ARTC. Summaries of the royalty holidays, royalty reductions and royalty tax credits are contained in Figure 5. These initiatives enhanced the existing cash flow of the industry and improved the economics of finding and developing new oil and gas reserves.

The Small Producers Assistance Commission (SPAC) was established to help restore the financial viability of small producers experiencing difficulties as a result of low world oil and gas prices. This independent commission was empowered to develop programs and co-ordinate efforts by creditors, banks and government to help small producers.

The Alberta Government pursued discussions with the federal government to determine additional measures required to assist the industry. It also reviewed measures necessary to encourage heavy oil and oil sands development. A special federal-provincial meeting was convened in January 1987 to consider what was required to ensure Canada's long-term security of supply.

Non-Conventional Oil Policy Initiatives

The Alberta Government participated in a number of forums to promote the role of oil sands as part of a broad Canadian strategy to enhance overall security of supply. The department initiated both short-term and long-term measures designed to develop provincial oil sands and heavy oil resources. These are summarized in Figure 7.

Figure 5 - Oil and Gas Activity Incentives Program

- **Crude Oil Royalty Holiday Program (CORHP) Enhancement**

Summary: Originally introduced in June 1985, the program was revised in October 1986 to provide royalty-free production for all new and deepened wells outside existing pool boundaries as follows:
for those spudded between Oct. 1, 1986 and Nov. 1, 1987 (60 months); Oct. 31, 1987 and Nov. 1, 1988 (36 months); Oct. 31, 1988 and Nov. 1, 1989 (12 months). The $1 million maximum per well benefit was eliminated.

- **Alberta Royalty Tax Credit (ARTC) Enhancement**

Summary: On June 24, 1985, the ARTC for small producers was increased, effective April 1, 1986, from 50 per cent to 75 per cent of royalty liabilities. The maximum value of credits was increased from $2 million to $3 million per eligible company or investor. On April 1, 1986, the ARTC was increased for the remainder of 1986 from 75 per cent to 95 per cent. On Oct. 29, 1986, this program was extended to Dec. 31, 1987.

- **Alberta Royalty Reductions**

Summary: Average gross royalty rates at then current prices were reduced to:

	Per Cent
Old oil	31
Old gas	25

Average gross royalty rates at then current prices were reduced to:

New oil	23
New gas	19

Slightly higher rates applied for wellhead prices above $30 /bbl for oil and $2/mcf for gas.

Figure 6 - Temporary Assistance Program Highlights

		1986/87
• Alberta Petroleum Incentives Program (APIP)		
Time Frame:	Jan. 1, 1981 to Dec. 31, 1986.	During the year, 9 264 applications were received, bringing the total to 37 783. The program paid $614 million to industry in 1986/87, for a total to date of $2.2 billion. As of March 31, 1987, audits had been completed on $1.14 billion of incentives paid.
Summary:	Provided cash grants equal to a percentage of incurred eligible costs and expenses, including exploration and development expenses for oil and gas wells, geological and geophysical expenses and asset costs relating to tertiary oil recovery projects.	
Value:	$2.2 billion.	
• Exploratory Drilling Assistance Program (EDAP)		
Time Frame:	April 1 to Dec. 31, 1986	By Dec. 31, 1986, $209.2 million had been reserved for 919 wells. In 1986/87, $31.2 million in assistance was approved for 162 wells.
Summary:	Allowed royalty credits for 50 per cent of the cost of drilling exploratory wells on Crown land.	
Value:	$300 million	
• Development Drilling Assistance Program (DDAP)		
Time Frame:	Initially from June 3 to Sept. 31, 1986. Extended to Dec. 31, 1986.	By Dec. 31, 1986, $96.3 million had been reserved for 1 476 wells. Cash payments totalling $68.3 million had been authorized by March 31, 1987.
Summary:	Allowed cash grants or royalty credits for a portion of the cost of drilling and completing development and injection wells on Crown land to a maximum of $200 000 per well.	
Value:	$100 million.	
• Well Servicing Assistance Program (WSAP)		
Time Frame:	Initially from June 3 to Sept. 31, 1986. Extended to Dec. 31, 1986.	By the end of the fiscal year, 13 995 applications for assistance had been received, the $50 million allocated to the program committed, and 8 227 applications for payment of $29.4 million approved.
Summary:	Provided cash grants for 50 per cent of the contract labor costs of maintenance and service wells, pipelines and batteries.	
Value:	$50 million.	
• Geophysical Assistance Program (GAP)		
Time Frame:	June 3 to Dec. 31, 1986.	By Dec. 31, 1986, $32.7 million had been reserved for 911 geophysical projects. By March 31, 1987, 512 projects had been approved for $14.4 million.
Summary:	Allowed cash grants or royalty credits for 35 per cent of the cost of seismic reflection work on Crown Lands.	
Value:	$50 million.	

Security of Oil Supply

At their annual conference in August 1986, the provincial premiers acknowledged that the increasing dependence on imported crude oil is a national problem and that a national solution to stabilize industry revenue is required. It was recommended that high priority be given to developing strategies that would stimulate Canada's oil and gas activity and ensure that national objectives were met. This issue was considered further at both the September 1986 Canadian Council of Provincial Energy Ministers' Meeting, and the November 1986 First Ministers' Conference.

Following the September 1986 meeting, Alberta, Saskatchewan and Quebec formed a task force to review Canada's future light oil supply/demand balance, the future availability and deliverability of domestic crude oil on a regional basis, and opportunities to reduce future light oil dependence. The task force, led by Alberta Energy, conducted a comprehensive review of the security of Canadian oil

Figure 7 - Project Highlights

The Syncrude Expansion Project Proposal Study:

Purpose: to provide a preliminary engineering study on a proposed $4 billion expansion of Syncrude. The expansion would produce an additional 80 000 barrels of synthetic crude per day, bringing total production to approximately 250 000 barrels per day.

Conditions: Funds advanced are to be repaid to the Alberta government from the proceeds of the expansion.

Scheduled Completion: 1988
March 31, 1987 status: On Schedule
Cost: $85 million

The Syncrude Capacity Addition Project (CAP):

Purpose: to increase production by 6.8 million barrels a year.

Brief Description: CAP is the second phase of a program to increase production capability by 20 000 barrels per day.

Start: 1983
Scheduled completion: 1988
March 31, 1987 status: On Schedule
Cost: $750 million

The Solv-Ex Oil Sands Mining Project - Phase 2:

Purpose: to demonstrate the commercial feasibility of a new solvent extraction process and to build a Solv-Ex plant near Fort McMurray in 1988.

Phase 1: 1986
March 31, 1987 status: Phase 1 assessment, Phase 2 feasibility study.
Cost: $125 million.

The Husky Bi-Provincial Upgrader Project:

Purpose: to convert bitumen and heavy oil to synthetic crude oil.

Brief Description: to date, the provincial governments of Alberta and Saskatchewan and the federal government have shared costs of the engineering study for the pre-construction phase of the upgrader.

Cost: $85 million

supply. An initial discussion paper, presented to all provincial energy ministers and the federal energy minister Jan. 30, 1987, stressed:

- that Canada possessed abundant indigenous resources offshore and in the oil sands;
- that any significant additions to Canada's light crude oil supply must come from these areas; and
- that there are social and economic benefits from such development in terms of employment and balanced regional growth.

Natural Gas Deregulation Initiatives

The third category of initiatives was aimed at establishing a competitive market for natural gas through deregulation.

The objective of gas deregulation is to replace a system of government-administered pricing and resource allocation with market prices that respond flexibly and impartially to supply and demand. The move toward natural gas market deregulation and more liberal export conditions began with the March 1985 Western Energy Accord. This was followed by the October 1985 natural gas markets and price agreement between the federal government and the governments of Alberta, British Columbia and Saskatchewan, and by an exchange of letters between the Alberta Minister of Energy and his federal counterpart in October 1986.

In 1986/87, the review and approval process for direct producer/consumer sales under new or expiring industrial contracts was streamlined. In addition, amendments to the Arbitration Act and the Gas Resources Preservation Act were adopted.

The Natural Gas Marketing Act was adopted in September 1986, with regulations to address transitional issues for contracts tied to regulated prices. The act provided a mechanism for producer approval of shipper-negotiated prices and allowed the government to gather gas market information.

The Take-or-Pay Cost Sharing Act and Regulation Amendment (TOPGAS) was passed. It provided for the collection of take-or-pay carrying costs under deregulation and the sharing of those costs by non-system gas using the TransCanada Pipeline.

In October 1986, the minister wrote to the chairman of the ERCB requesting him to proceed with a review of the procedures and formulas used to administer the Gas Resources Preservation Act. At that time, it was government policy to provide for the reasonable needs of end-users who could not normally be expected to contract directly with producers for supply needs, but not for those end-users, generally in the industrial category, who were capable of arranging security of supply through direct contractual practices.

Subsequently, the ERCB reviewed its surplus determination procedures and recommended a 15-year core market protection policy, approximately matched by the contracting practices of the gas utilities in Alberta.

Mineral Resources

The department is responsible for the administration and management of Crown mineral rights, including oil and natural gas, coal, oil sands, industrial and metallic minerals, placer minerals and salts. Figure 8 provides a summary of active mineral exploration and development agreements.

Issuance and Administration of Crown Agreements

Undisposed Crown rights are offered by public tender under Section 16(b) of the Mines and Minerals Act and by direct purchase pursuant to Section 16(a).

Mineral Agreements

On March 31, 1987, there were 55 362 active Crown mineral agreements covering 30.8 million hectares, compared to 54 757 agreements and 32.9 million hectares at the end of the previous fiscal year. On March 31, 1987, there were 3 218 active Crown mineral exploration agreements covering 4.8 million hectares, compared to 3 070 exploration agreements and 4.7 million hectares at the end of the previous fiscal year. Active development agreements at fiscal year-end increased by less than one per cent to 52 144 from 51 687 at fiscal year-end 1986, while the area covered by the agreements dropped by nearly eight per cent to 26 million hectares from 28.2 million (Figures 9 and 10).

Sale of Crown Petroleum and Natural Gas Rights

Twenty-five public offerings were held in Calgary during the year. Bonus contributions from the sale of 1.7 million hectares of petroleum and natural gas leases and licences totalled $240.5 million, 66.8 per cent lower than the previous year (Figure 11). The reduction may be attributed partly to the uncertainty in the price of oil and partly to the efforts of companies to conserve cash at a time of reduced revenue. Most exploration rights were acquired in Northern Alberta, while most development rights were acquired in the plains area.

Lease Continuation

Expiring petroleum and natural gas leases are reviewed to determine whether they are eligible for continuation. The number of leases expiring during 1986/87 was 4 912, 26 per cent lower than 1985/86 (Figure 12). This is attributed mainly to the replacement of the 10-year lease by the five-year lease in July 1976, and partly to the effect of the National Energy Program (NEP) on lease sales in 1981. Since the number of five-year leases dropped substantially in 1981 in response to the NEP, there was a corresponding decline in 1986 in the number of leases that could be continued. Year-end status of the 4 389 expiring leases was:

• Continued based on proven productivity	1 426
• Continued for a one-year period as potentially productive	304
• Continued because of drilling operations near the end of the term	3
• Extended beyond the end of the fiscal year because of circumstances beyond the lessees' control	10
• Expired by their own terms	2 646

In all, 86 leases were continued during the year because of drilling operations, and 22 term extensions were granted on 12 leases. Reviews were conducted on 523 leases (151 774 hectares), previously continued for a one-year period as potentially productive. Twenty-nine per cent (43 841 hectares) of the potential lands were further continued as proven. The remaining 107 933 hectares remained unproven and reverted to the Crown.

The Mines and Minerals Act provides for monitoring of continued pretroleum and natural gas leases. When the productivity of a continued lease is questioned, the minister serves a one-year notice stating that the lands or rights will revert to the Crown unless the lessee provides new evidence of productivity. During 1985/86, 2 270 notices were served, affecting 880 000 hectares. The expired notices were reviewed during 1986/87; 451 leases, covering 100 000 hectares, were proved productive and were continued. Some of the remaining leases were amended by the deletion of unproductive lands or rights, and the others were cancelled. During 1986/87, 267 new notices were served, affecting a total of 65 000 hectares.

Unit Agreements

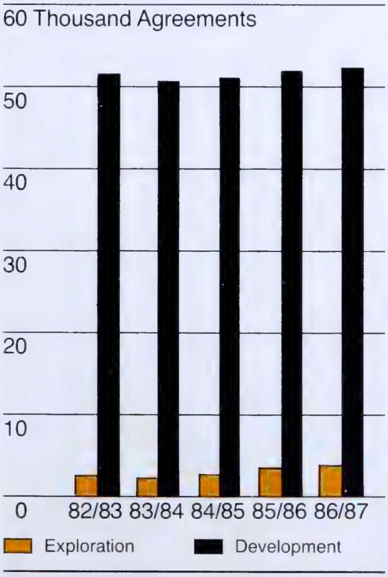
Unit agreements minimize operating costs in multiple-owner oil and gas pools, and facilitate the use of enhanced recovery schemes. Proposed unit agreements are reviewed before execution and change may

Figure 8 - Active Mineral Exploration and Development Agreements

	Number of Agreements				Thousand Hectares			
	March 31 1986	Issued	Cancelled	March 31 1987	March 31 1986	Issued	Cancelled	March 31 1987
Oil Sands								
Exploration	12	9	5	16	73	60	22	111
Development	266	38	8	296	2 585	239	126	2 698
Sub-total	278	47	13	312	2 658	299	148	2 809
Petroleum and Natural Gas								
Exploration	3 050	786	652	3 184	4 612	959	984	4 588
Development	48 144	4 368	3 760	48 752	24 313	2 335	4 500	22 148
Sub-total	51 194	5 154	4 412	51 936	28 925	3 294	5 483	26 736
Metallic Minerals								
Exploration	8	12	2	18	28	48	5	71
Development	6	1	0	7	3	1	0	4
Sub-total	14	13	2	25	31	49	5	75
Coal and Coal Road Allowance								
Development	3 136	60	244	2 952	1 281	14	138	1 157
Other Minerals								
Development	135	17	15	137	21	1	3	19
Exploration Sub-total	3 070	807	659	3 218	4 714	1 068	1 011	4 770
Development Sub-total	51 687	4 484	4 027	52 144	28 203	2 589	4 766	26 025
Grand Total	**54 757**	**5 291**	**4 686**	**55 362**	**32 916**	**3 657**	**5 778**	**30 795**

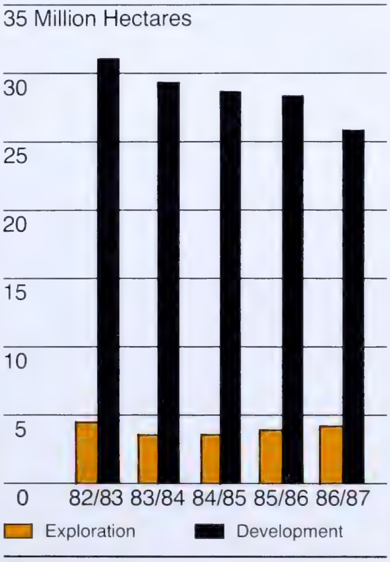
Source: Mineral Resources Division

Figure 9 - Active Mineral Agreements



Source: Mineral Resources Division

Figure 10 - Active Mineral Hectares



Source: Mineral Resources Division

be negotiated to ensure the Crown an equitable share of the resource. Sixteen new unit agreements became effective in fiscal year 1986/87 and nine existing units were enlarged.

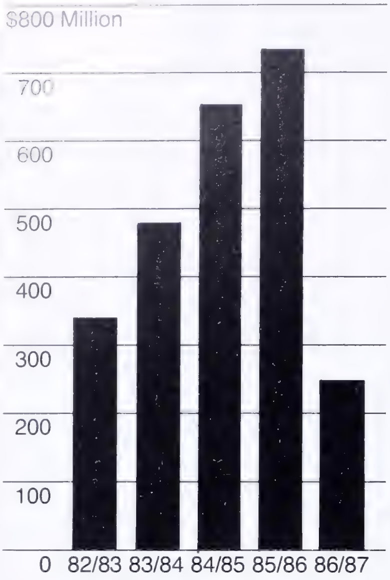
Drilling Requirements

Ten-year petroleum and natural gas leases that reached the end of the sixth year of their terms during the fiscal year and on which a well had not been drilled are subject to statutory drilling requirements or payments of penalties to keep the lease active. As the number of 10-year leases outstanding declines, the corresponding number subject to drilling requirements also decreases. During 1986/87, 757 leases were extended by payment of $6.3 million in penalties.

Oil Sands

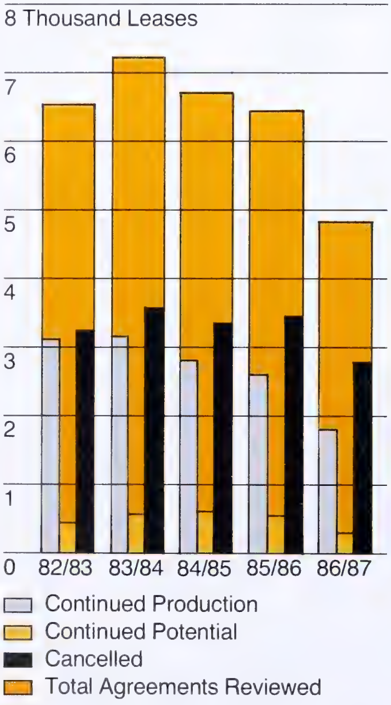
Oil prices affected oil sand activity. Nonetheless, 43 new oil sands leases and eight oil sands prospecting permits were granted or applied for, and one oil sands lease was renewed for a second 21-year term.

Figure 11 - Oil and Gas Rights Sales Bonuses



Source: Mineral Resources Division

Figure 12 - Lease Continuation



Source: Mineral Resources Division

Coal

Alberta's raw coal production was 27.7 million tonnes in 1986, the same as in 1985. Because of increased production of sub-bituminous coal and increased plant yields of bituminous coal, marketable coal production increased from approximately 24 million tonnes in 1985 to 24.5 million tonnes in 1986. An oversupply of coal in the world, however, led to uncertainty in markets and prices.

To help identify additional market opportunities, Alberta participated in a federal/provincial task force on the use of low sulphur western Canadian coal in Ontario. Based on the forecasted demand for coal in Ontario, the task force looked at the economic possibilities of using low-sulphur western Canadian coal. Ontario Hydro's coal requirements are expected to decrease until 1992. However, expanded use of western Canadian coal by Ontario Hydro thereafter offers potential benefits to Canada, but at a cost to Ontario Hydro. Reduced acid gas emissions in Ontario would occur, while employment and income would rise in western and central Canada. To seize this opportunity, the competitive position of western Canadian coal, including Alberta coal, delivered in Ontario must be improved. With this goal in mind, the premiers of Alberta, British Columbia, Saskatchewan and Ontario, and the Deputy Prime Minister of Canada established an Action Committee to identify and pursue appropriate initiatives.

Besides market development and promotional activities, the department's resource management activities were associated with coal leases, work deposits and coal lease rentals. Activities in these areas were affected by uncertainties in coal markets and prices.

There was a reduction in the area of Crown coal rights under lease; 157 leases covering 93 716 hectares were surrendered to the Crown. Further, 37 lease applications held in environmentally sensitive areas such as the Eastern Slopes, where the preferred land or resource use is still to be determined, were withdrawn at the applicant's request. This added 239 208 hectares to the Crown's undisposed rights holdings. Thirty-two coal leases covering 3 432 hectares were renewed.

Tighter budgets caused a decrease in coal exploration activity, with 405 holes drilled in 1986/87, compared to 684 the previous year. This resulted in $184 380 work deposits being refunded to coal leases for expenditures incurred in exploration, compared to $1.35 million the previous year.

The reduction in the number of coal lease hectares held was accompanied by a corresponding drop in coal lease payments, from $3.1 million to $2.8 million.

The department also provided leadership through the Alberta Office of Coal Research and Technology for the development and application by industry of new technologies to help make the Alberta coal industry more competitive.

Metallic, Quarriable and Other Minerals

There was an increased level of metallic mineral exploration activity. Twelve metallic mineral exploration permits covering 48 664 hectares were issued, resulting in 25 holes being drilled, with a total depth of 5 250 metres.

The quarriable mineral industry, which includes industrial minerals, maintained the previous year's level of activity. Two leases were renewed and two additional leases issued.

Attractive gold prices continued to sustain interest. Four placer mineral leases to extract "flour" gold from sand and gravel deposits were issued and four leases renewed. The growing interest in gold prospecting as a hobby resulted in 129 placer mining permits being issued; to date, there are a total of 839 permittees involved in hobby prospecting in Alberta.

Although no major discovery of mineralization was announced, a refund of $1.04 million in security deposits, held against minimum assessment work expenditure requirements, was a clear indication of the significant increase in metallic mineral exploration in Alberta.

Mineral Agreement Lessee Compensation

The department administers the payment of compensation to mineral agreement lessees located in areas where exploration or development is not in the public interest. In 1986/87, $1.6 million was paid out as compensation. This payment was for five claims encompassing 22 coal leases on 11 696 hectares. Eight new applications for compensation were received, and 11 applications received the previous year were still under negotiation.

Research and Technology Development

Department research and development activities consist of managing two major research funding programs: The Alberta Canada Energy Resources Research Fund (A/CERRF) and the province's Reclamation Research Program (Figure 13).

Alberta/Canada Energy Resources Research Fund

During 1986/87, A/CERRF funds were used to support coal research and development in addition to energy conservation and renewable energy research. Forty-seven coal research projects were carried out by the coal industry, the Alberta Research Council, the Coal Mining Research Company and Alberta universities. Thirty-six energy conservation and renewable energy research projects were undertaken through three sub-programs: energy conservation in buildings, waste heat recovery and wind energy.

Coal Research

Coal research funding was administered by the Alberta Office of Coal Research and Technology.

Research priorities focused on increasing the competitiveness of Alberta coals in Ontario and offshore markets and developing new uses for Alberta coals.

An advance/retreat underground mining method, based, in part, on research previously supported with A/CERRF funding, has been introduced in an operating coal mine and has contributed to significantly lower mining costs. Similarly, development of a footwall anchoring system has resulted in lower overburden removal costs in open pit mines with steep footwalls.

A major focus of the Office's activities in 1986/87 were directed toward options for reducing the cost of coal transportation. Initiatives included both upgraded coal products and coal slurry pipeline techniques.

Gasification of coal is receiving major new interest throughout the world as a means for reducing the environmental impact of coal combustion. The Office has initiated a collaborative program with industry and other governments to determine the potential of coal gasification to

Figure 13 - Research Programs

Alberta/Canada Energy Resources Research Fund (A/CERRF)
The program was created as a result of the 1974 agreement between the oil producing provinces and the Government of Canada to hold the wellhead price of domestic crude oil at $6.50 a barrel from April 1, 1974 to June 30, 1975.

The fund began with $96 million in 1976; since then, $78 million has been spent on more than 175 research, development and demonstration projects focusing on coal and other conventional resources, conservation and renewable energy and the construction of two research buildings.

Reclamation Research Program
The program is funded through Alberta Environment, but administered by the interdepartmental Reclamation Research Technical Advisory Committee (RRTAC) under the chairmanship of the Alberta Department of Energy.

The program was designed to incorporate three industry/government sub-programs: a) Plains Coal, b) Oil Sands and c) Mountains and Foothills.

Industry support for the Oil Sands, and Mountains and Foothills sub-programs makes up 50 per cent of the total research budget. Industry also supports the Plains Coal Sub-program by constructing test plots and providing access, staff and records.

Results from the sub-programs provide regulatory agencies and industry with a rational basis for reclamation, evaluation and planning.

Alberta, not only for power generation within the province, but also as a new coal export market opportunity.

In collaboration with the heavy oil and coal producers, the Office is encouraging the use of coal in heavy oil production and upgrading.

The Office continued to support fundamental coal research at Alberta universities through its grants programs.

International co-operation is important to maximize the effectiveness of technology development in Alberta. The Office continued to encourage co-operative research efforts with Japan, Federal Republic of Germany and through the International Energy Agency.

Energy Conservation and Renewable Energy Research

Activities focused on energy conservation in buildings, waste heat recovery and wind energy.

Energy Conservation in Buildings

Energy-conservation research projects included the development and testing of an insulating curtain, a computerized building management system, new lines of energy-efficient natural gas-fired furnaces and unit heaters, and reflective ceilings for ice arenas. The insulating curtain, attached to the outside of overhead doors, is twice as effective as weatherstripping in reducing air leakage, but is slightly more expensive. The computerized building management system can operate up to 99 remotely located controllers of mechanical systems in large or small buildings. It can reduce gas and electricity consumption by at least one-third. The new mid-efficient furnaces and unit heaters, designed and built in Alberta, were commercially produced and are being sold throughout Canada. Reflective ceilings can save up to 33 per cent of the refrigeration energy requirements in indoor ice arenas.

Other research projects under way during 1986/87 were concerned with more efficient use of heating, ventilation and air-conditioning equipment in institutional and commercial buildings. Under investigation were ways to reduce peak demand for electricity, dehumidify indoor swimming pools and reduce the need to operate air-conditioning systems.

Waste Heat Recovery

Seven projects investigated opportunities for recovering and using waste heat or low-temperature heat in industries such as meat packing, dairies, commercial laundries, and in recreational facilities. Preliminary test results from the meat packing plant were especially encouraging; 24 per cent of the available waste heat was recovered and the overall operation was significantly improved.

Two additional projects were concerned with co-generation, the simultaneous production of electric power and useful thermal power in one process.

Wind Energy

After several years of development, the delta-blade wind turbine project was completed. Performance testing of a 16-metre diameter prototype showed that its ability to capture wind energy was one of the best for multi-blade wind turbines. The contractor, Deltx Windpump Corporation, started to market small 5-metre diameter units. Testing of various other wind turbines was undertaken at the Lethbridge Wind Research Site.

Technology Transfer

Nine booklets covering 24 projects in energy conservation, renewable energy and coal research projects were published to facilitate technology transfer. Topics included *Geothermal Energy Resources in Canada, Measuring and Harnessing Alberta's Wind Resources, Solar Energy Potential for Alberta* and *An Economic Analysis of Coal Pipeline Systems.* The booklets were made available to energy researchers, architects, designers and energy specialists.

Reclamation Research Program Fund

Fourteen projects were in progress under the Reclamation Research Program. With the objective of restoring disturbed land to productive use, the provincial government contributed $1.2 million to three industry/government sub-programs: Plains Coal, Oil Sands, and Mountains and Foothills.

Hydrological studies have shown, for example, that groundwater in mined-out areas is too salty for human or livestock consumption. It tends to remain within the mine site, however, and does not contaminate surrounding aquifers. Surface waters on mine landscapes are not salty and can be used for human or livestock consumption.

Other experiments showed the quantity of soil required to reclaim mine spoil is significantly less than expected.

Alberta Oil Sands Equity

Alberta Oil Sands Equity (AOSE) manages Alberta's investment in the Syncrude Project and in an exploration and development program on six oil sands leases in northeastern Alberta.

The Syncrude Project made significant gains in both operating reliability and efficiency during the year. For the year ending March 31, 1987, the Syncrude Project produced a record 52.4 million barrels of synthetic crude oil, or an average daily production of 143 500 barrels. Reduced operating costs resulted in the project achieving an average direct operating cost per barrel below $13. As a result of prices that averaged only 54 per cent of those of the previous year, Alberta's 16.74 per cent participation in the project earned a net profit of 33.6 million, compared to $72 million in 1985/86. By March 31, 1987, Alberta's participation in the project amounted to $483 million, consisting of net cash advances of $111 million and accumulated income of $372 million. Highlights of two major projects - The Syncrude expansion studies and the Capacity Addition Project - are shown in Figure 7.

Alberta Oil Sands Equity is a member of the Other Six Leases Operation (OSLO) consortium that is conducting exploration and development on six oil sands leases in the Fort McMurray area. The OSLO consortium has reached agreement with Alberta Oil Sands Technology and Research Authority for joint funding in 1987 of the initial phase of a dredging/cold water extraction demonstration project costing $900 000. The total project is expected to take four years and cost $31 million.

Energy Conservation

In addition to furthering energy conservation and efficiency through research and technology development, the department conducts programs to ensure that information about available technology is provided to the public, and that such technology is applied to reducing energy demand overall. Such assistance was provided through four program areas: industrial, transportation, residential and schools.

The Industrial Program, aimed at business, industry and institutions, offers energy audits on request at buildings and plants throughout the province. These audits are conducted by staff engineers and technologists using the computer-equipped Energy Bus. Technical staff also make presentations on the fundamentals of energy management at seminars and conferences. In 1986/87, energy-cost savings of $2.6 million per year were identified in 156 audits covering 233 buildings. Easily implemented measures were identified that could save an average of 19 per cent over current energy costs. Audit support activities focused on completing a series of booklets on saving energy in business and industry, plus preparing displays, presentations and advertising. A major revision of the audit computer software was undertaken as well.

The Transportation Program is aimed at motorists and fleet operators. Information on fuel economy is provided through publications, displays and driver training. In 1986/87, Fuel Economy Calculators remained one of the Energy Conservation Branch's most popular publications. Over 430 000 auto and truck calculators were distributed at fuelling stations across Alberta. The Driver Energy Conservation Awareness Training (DECAT) program was operated on a pilot basis. Publications were distributed upon request, and displays were operated at the Calgary and Edmonton auto shows.

The Residential Program, focusing on homeowners and the housing industry, provides technical information and advice through publications, a telephone advisory service and workshops. It also involves technical training programs for the housing industry and associated trades. The toll-free telephone inquiry service handled 3 420 calls from homeowners and builders in 1986/87. Energy Matters, a database containing over 1 700 product and technical files, was developed to assist in dealing with questions. Two new titles increased the *Alberta Energy $avers* residential series to 11 booklets. Over the year, 220 000 copies were distributed via 933 outlets and the Energy Conservation Branch. Home Energy $avers Workshops were attended by 1 600 homeowners in 78 sessions across the province. New activities in the housing industry program included detailed reference packages sent to 61 homebuilders, general information sent to 7 800 real estate agents and five workshop presentations. An audio-visual lending library consisting of 82 videotapes and slide shows was available to the residential construction industry.

Under the School Program, staff work directly with Alberta teachers and students throughout the province, visiting schools to make presentations, to develop materials on energy conservation to fit the Alberta school curriculum, and to train teachers in the classroom application of these materials. School programs during the year brought the energy conservation message to 12 873 students in grades 1 to 6 at 68 schools. Workshops on how to use the curriculum support materials were attended by 71 teachers and administrators. The Home Energy Analysis Tutorial (HEAT) kit was developed and piloted by 25 high school teachers in Physics 20, building construction and drafting courses.

The Energy Conservation Update newsletter, covering all program areas, informed readers of the latest energy conservation developments. Nine issues were produced with a circulation of 1 100.

Revenues

The worldwide collapse of oil and gas prices created financial uncertainty, stress and instability in the oil and gas sectors. There were significant reductions in exploration and development activities. The impact on government was sharply reduced oil and gas revenue.

In response to the price collapse, a number of initiatives were undertaken by the government to sustain continued industry activity. During the year, major reviews were conducted on the implications of gas price and market deregulation for the current royalty systems, the validity of current pricing practices relating to injected hydrocarbon valuation, and the administration of enhanced oil recovery royalty relief.

Emphasis was placed on communication with industry, providing education about the department's administrative system for natural gas royalties, and responding to industry concerns and suggestions. In consultation with industry, new natural gas royalty reports, structures and controls were developed and implemented which improved the effectiveness of gas royalty administration. There was a significant decrease in errors in natural gas royalty reporting, resulting in improved controls and reduced administrative burdens for both government and industry.

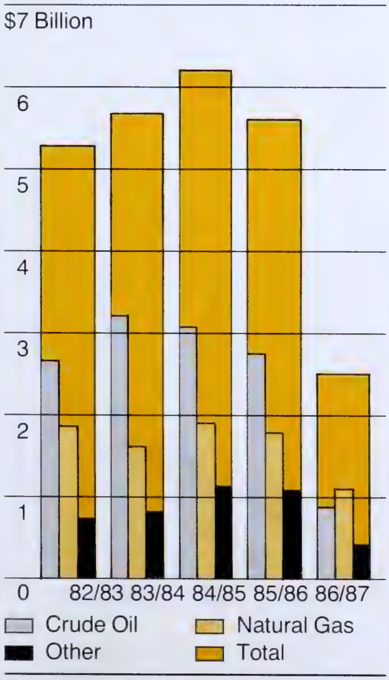
Gross revenue generated from non-renewable resources during the fiscal year was $2.5 billion, as compared with $5.6 billion in 1985/86 (Figure 14). The decline in petroleum and natural gas prices accounted for the majority of the revenue decrease; however, some decrease occurred as a result of planned reductions in royalty rates. Net revenue was approximately $1.5 billion. Cash grants through the Alberta Petroleum Incentives Program and other incentive programs account for the difference between gross and net energy revenue.

Petroleum Royalty

The second of three planned royalty rate reductions took effect in August 1986. In response to the price collapse, the third planned reduction was moved from August 1987 to November 1986. In addition, further reductions were provided in the calculation of royalties on New oil. As a consequence, the combined Old and New gross royalty share of production from Crown lands dropped from 29.5 per cent in March 1986 to 25.5 per cent in March 1987.

The effect of price and volume reductions was reflected in a decline in crude oil royalty revenue. Net royalty, after royalty holidays and oil recovery relief, decreased by $1.8 billion, dropping to $934 million (Figure 15). Net

Figure 14 - Energy Revenues (Gross)



Source: Mineral Revenues Division

revenue for production of Crown oil was slightly in excess of $700 million, resulting in a net effective Crown royalty of 16 per cent.

Natural Gas Royalty

Natural gas prices declined, although not as dramatically as crude oil prices. The ability of larger industrial users to switch between gas and fuel oil, combined with the significant fall in crude oil prices, did push down the price of natural gas. Efforts in Canada and the U.S. to deregulate prices and pipeline access provided new market conditions for the industry. Market uncertainty, combined with variable and generally lower prices, resulted in decreased sales volume and revenue.

As with oil, the implementation of a planned royalty rate reduction in August, together with accelerated and expanded reductions in November, reduced the Crown's gross royalty share. Natural gas revenue was reduced by $700 million to $1.1 billion, a 33 per cent decrease. Net Crown receipts from gas, after adjustment for processing allowance, royalty holidays, and incentives, were just over $800 million, for a net Old and New effective Crown royalty of 16.4 per cent.

Synthetic Crude Oil and Bitumen Royalty

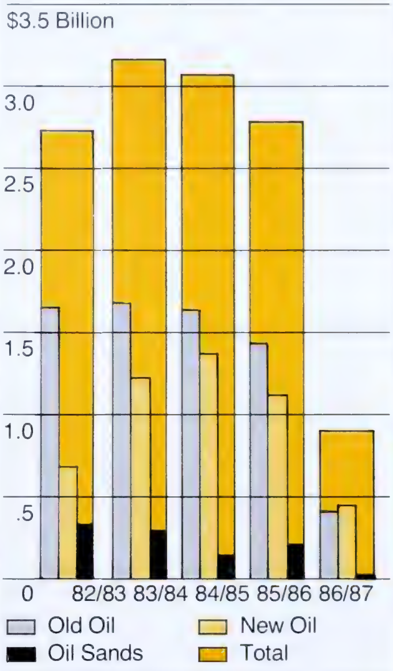
The magnitude of the drop in world oil prices was of particular concern to those involved in the recovery of bitumen from oil sands deposits. However, with consideration from the government and determined efforts to improve efficiency, both major oil sands plants were able to maintain operations and continue with long-range plans. Syncrude and Suncor established new benchmark production levels at 47.3 million and 20.3 million barrels, respectively. Suncor, which operated under a royalty formula solely dependent on the volume of production, was given temporary royalty relief for the period from April 1986 through June 1987.

Coal and Other Minerals Royalty

The coal industry continued to face a difficult year in 1986/87. Attempts to retain market share by lowering prices resulted in marginal returns or break-even situations for producers competing in the export market. Growth in the domestic thermal coal industry kept pace with electric power demand. In general, there was some modest growth and the industry remained relatively sound.

Gross royalty for 1986/87 was $16.9 million, down from $21 million the previous year, and net royalty was $7.8 million, down from $10.2 million (Figure 16). Royalties from salt, gold, silver and quarriable minerals were relatively unchanged at $400 000.

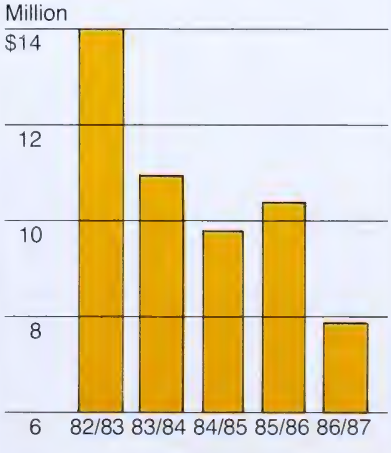
Figure 15 - Petroleum Crown Royalties



Note: Old oil is conventional oil produced from pools discovered before April 1, 1974, while New oil is from pools discovered after March 31, 1974.

Source: Mineral Revenues Division

Figure 16 - Coal Royalty



Source: Mineral Revenues Division

Freehold Mineral Tax

Mineral tax is calculated on the value of production from freehold producing properties and is attributed to the titles of the property. For the 1986 taxation year, 5 800 taxable titles resulted in a net tax assessment of $103.9 million, of which $49.8 million was oil and $54.1 million gas (Figure 17). Enhanced Oil Recovery relief reduced this revenue to $97.8 million. The reduction in taxes from the previous year is primarily due to the downturn of prices during 1986. An exemption from tax is provided on the first $1 600 in taxes and, as a result, 10 986 titles were exempted.

Incentives

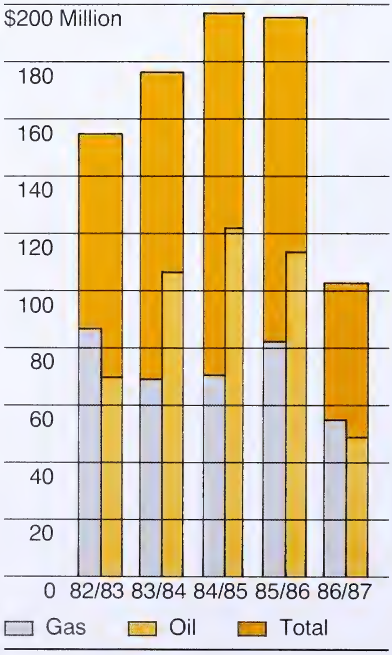
In the fall of 1986, in an effort to promote activity, the province enriched and extended the Crude Oil Royalty Holiday Program (CORHP) to 1989. The enrichment provided a royalty-free period of up to five years for new wells and eliminated the $1 million maximum per-well benefit. During the period October to December 31, 1986, wells could qualify for both cash grants and a five-year holiday. The combined effect of lower gross royalty rates, incentives and elimination of the federal Petroleum Gas Revenue Tax (PGRT) increased drilling rig use to nearly capacity.

The ultimate value of the holiday benefit provided to industry depends on future production. The province processed 1 057 applications for holiday status and paid $53.6 million in holiday benefits during the fiscal year. Benefits taken for wells drilled in earlier years amounted to $29.5 million. These included benefits paid under the Exploratory Drilling Incentive System (EDIS) and under the Oil Royalty Exemption System (ORES). Approved wells under the Deep Gas Royalty Holiday Program totalled 32 and, while benefits will depend on future production, they are expected to be approximately $20 million.

Twenty wells were approved under the Exploratory Gas Well Incentives Program. The maximum benefit is limited to $2 million per well; however, actual production will likely result in smaller royalty reductions for most wells.

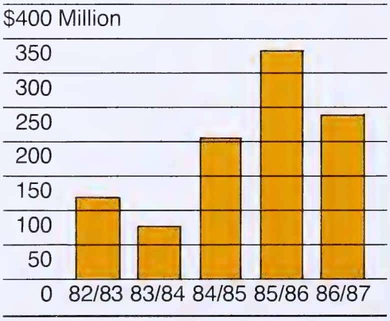
An ongoing program of Crown participation in the cost of enhanced oil recovery schemes resulted in six new projects being approved, bringing the total approved to date to 47. Crown participation is provided through royalty relief on incremental production, with $244 million in relief provided during the fiscal year (Figure 18). The volume of incremental production was 6.7 million cubic metres, up 22 per cent over the previous year. The royalties forgiven under this program are recovered from future production of the schemes.

Figure 17 - Oil and Gas Tax Levy



Source: Mineral Revenues Division

Figure 18 - Enhanced Oil Recovery Relief



Source: Mineral Revenues Division

Departmental Support Services

A full range of support services was provided by the Finance and General Services, Energy Communications, Human Resources, Audit and Automated Information Systems divisions.

Finance and General Services Division

The Finance and General Services Division, serving both Energy and Forestry, Lands and Wildlife, provides centralized support services in accounting, finance and administration.

The wide range of accounting responsibilities provided by the Financial Accounting Branch includes processing invoices, recording and depositing revenue, managing the collection of outstanding accounts, controlling the fixed asset recording system, and preparing quarterly and annual statements of revenue and expenditure.

Some 184 000 client accounts are in the Main Accounts Receivable System (MARS), which is linked with systems in Mineral Revenues, Mineral Agreements, Crown Lands and Timber Management.

Revenue collected and deposited in 1986/87 totalled $2.6 billion.

A major improvement was made in processing revenue. A microcomputer system was implemented that allows on-line data entry, thereby eliminating much of the paper previously generated to record receipt of revenue.

As the Mineral Revenue System (MRS) became operational, an interface system was developed between MRS and MARS. This system, scheduled for completion in July 1987, will reduce the manual effort necessary to record revenue received under the royalty system. A further study is underway on the feasibility of improving MARS.

A new system was implemented for processing contract payments in accounts payable. This system records all contractual liabilities and automatically produces data entry documents suitable for entry into the DFS/CFS Central Accounting System (NFIS).

On Oct. 1, 1986, a new accounting system (NFIS) replaced the Alberta Financial Information System (AFIS) used for over 10 years. The major task for the implementation team was to generate a new coding system that would provide consistent reports for management. An additional change was to have supplier invoices coded and entered in the department, thus ensuring prompt payment and earlier recognition of the liability in the reporting system. This change has greatly decreased the time required for processing payments.

The department uses a microfilm computer retrieval system for tracking payment to suppliers. By automating the process, considerable manual effort has been eliminated, while at the same time providing a faster, more efficient retrieval system. With the implementation of NFIS, modifications were made to take advantage of the interface capability of the central system. By using this capability, electronic data can now be passed from the central computer to a micro system, eliminating the need to enter document payment data.

Co-ordination of the changeover from AFIS to NFIS was assigned to Financial Planning and Control. New management reports available on NFIS were ordered, as well as control reports associated with in-house data entry. As NFIS is an on-line system, a security system for both data entry and data inquiry was implemented. A training program was designed and presented to field staff. The conversion was implemented on time, with little or no disruption in service.

As a result of the coding system change, the Budget and Planning area was forced to rewrite the budget consolidation system used for the past five years. The system was upgraded to include changes in technology and to ensure that automated interfaces between the system and the government's central computer were possible.

To create more efficient systems for the department, the Financial Planning and Control group, with Treasury's approval, implemented a Self Pay Purchase Order System (SPPO) throughout the department. The system allows expenditure officers to order and pay for goods to a maximum of $250 by using a cheque attached to the purchase order. The system frees suppliers from sending invoices to the government for payment and also eliminates the matching process in the department, thus reducing administrative effort for both government and vendors. At the end of March 1987, 238 expenditure officers were using the system, with approximately 1 500 cheques being issued per month. As the system becomes fully operational, these volumes are expected to increase.

During the year, a review of minor revenue was undertaken to ascertain if the rate being charged was recovering associated costs. Where recovery did not occur, recommendations were made for rate increases. A study of MARS was undertaken to determine if the system could provide the information required for the revenue review. Changes recommended to management will be implemented in 1987/88.

The General Services Branch also provides a full range of administrative support services, including Records Management, Accommodation Services, Graphics Production and the operation of the Land Status Automated System (LSAS).

This year saw the completion of LSAS, with the addition of subsurface agreement data to the system and the replacement of the Mineral Agreement Information System (MAIS). In addition, LSAS now contains all activities administered by Recreation and Parks and is in the process of providing support to Alberta Municipal Affairs, Metis Development and Land Management Branches. The system also supports access by six other government departments. There are approximately 120 terminals having direct access to the system. A pilot project to evaluate regional office access to LSAS was successfully carried out in Peace River. Expansion to regional offices in St. Paul and Rocky Mountain House and Lethbridge is planned for 1987/88. The 1986/87 year saw the system respond to over one million parcel inquiries from both the private and public sector.

The Records Management Program includes six areas: Mail and Messenger, Records Operation, Micrographics, Record Systems and Control, Calgary Operations and Library Services. The majority of these functions are automated to provide computer assistance for file location and control, subject database, and record retention and management reporting. Four hundred and fifty thousand quarter-section land and agreement files, as well as 40 000 subject files, are accessible through this system. These files, along with an average of 73 000 pieces of mail received monthly for processing, and the average 92 000 pieces of out-going mail per month, support the program delivery of the operating divisions of the departments of Energy and Forestry, Lands and Wildlife.

Acquisition of computer graphics equipment has permitted improved services in the production of forms, slides and special presentation material. This has significantly enhanced presentation material used in dealing with the public and other government agencies.

Energy Communications

The Energy Communications Branch became a separate entity under Finance and General Services in December 1986. The branch is responsible for counselling the minister on communication strategies, as well as providing internal and external communication services to the department. These services include public relations activities, advertising, printing and publishing, audio-visual and display services, and media relations.

Major energy publications produced include annual reports/reviews for Alberta Energy; the Advisory Committee on Heavy Oil and Oil Sands Development; the Alberta/Canada Energy Resources Research Fund (A/CERRF); the Energy Conservation and Renewable Energy Research Development and Demonstration Program; the Alberta Office of Coal Research and Technology; and the Petroleum Incentive Programs.

A series of technology transfer booklets was initiated. These described projects completed through A/CERRF and the Energy Conservation and Renewable Energy Research Development and Demonstration Program. Nine booklets were published.

Public relations services provided to the Energy Conservation Branch included communications planning, advertising, displays and publications. These related to industry, schools, transportation and households.

The Energy Conservation Branch communications officer worked with the federal department of Energy, Mines and Resources to help daily and weekly newspaper publishers print supplements on energy conservation.

The branch planned an industrial newsletter to be published in the next fiscal year, and used computer technology to produce the branch newsletter, Energy Conservation Update, resulting in excellent cost savings.

The Editorial Services Section and the Information Centre serve both Energy and Forestry, Lands and Wildlife. Editorial Services provides professional editing and bibliographic control of all technical and general publications for both departments. It also produces the Guide to Programs and the publication catalogues. A major project for the year was computerizing the bibliographic information for all publications produced by both departments.

The Information Centre, now in its fourth year, serves the public, the departments and other government agencies by distributing general and technical publications, as well as selling various licences and permits. The centre also provides a directory and referral service.

The Information Centre had an increase of 38 per cent in transactions for this fiscal year as compared to last year. The most noticeable increase was in distribution of technical publications.

Human Resources Division

The Human Resources Division, formerly Personnel Services, is responsible for providing services in recruitment, classification, salary and wage administration, employee relations, staff and organization development, training, and occupational health and safety.

During the year, the division provided service for 815 permanent positions 76 project positions and approximately 500 wage employees. Although there was a 4½-month hiring freeze and a slight decrease in employment levels, the activity level remained high. To meet the demands of government restraint and maintain the high level of service, emphasis was placed on operational and organizational reviews. This involved structural and classification changes, redeployment of staff, re-employment counselling and organizational intervention.

In administering the Special Employment Program offered through Career Development and Employment, the department provided employment to 86 Albertans. This allowed them the opportunity to gain work experience in their fields of interest and prepare for full-time employment. The Early Retirement Program, announced in January 1987, resulted in considerable time being spent communicating details to staff, conducting individual counselling sessions with eligible employees, processing incentive packages and administering the Public Service Pension Plan.

The Training and Organizational Development area focused on modifications to the Managing Human Resources Training Program and working with a number of line divisions in developing human resource planning processes to meet current and future requirements. Better systems were established for matching employee needs and abilities with organizational restructuring requirements. Manager profiles were developed for a Human Resources Information System and will be used for future developmental and manpower programs.

The Occupational Health and Safety program continued to maintain a high profile. The Safety Wise newsletter is published quarterly and distributed throughout the department. A departmental planning session reviewed roles and responsibilities, identified programs and policy requirements, and established safety priorities.

Internal Audit

The Internal Audit Division assists management in the effective discharge of its responsibilities by providing analyses, appraisals, recommendations and comments.

Reporting on financial activities continues to be important to ensure that internal accounting and operating controls are functioning properly. More emphasis has been placed on reviewing techniques used by management to evaluate program efficiency and effectiveness, and to ensure that results are consistent with objectives. One management audit which included a review of these techniques was completed and was well received by management.

Major computer-based systems are being examined to determine if controls are adequate and the needs of users and objectives of the system are being met.

Audits were completed according to plan, including numerous special reviews for management. In addition, deficiencies identified by earlier audits were reviewed to ensure corrective action was implemented. The use of private-sector chartered accounting firms enabled staff to spend more time on unique departmental activities.

The three-year audit program, a blueprint of future audit operations, is being updated in consultation with divisional management. It addresses the needs of the department and provides management with an operational overview. Particular emphasis is being placed on efficiency to assist management in meeting its downsizing goals.

Internal Audit continues to identify significant tangible savings achieved as a result of implementing the recommendations. Savings generally exceed the cost of audits several times over.

Automated Information Systems Division

The division provides technical expertise and leadership in automated data and word processing systems to the departments of

Energy and Forestry, Lands and Wildlife.

On March 31, 1987, the two departments had 65 operational systems. During the year, eight systems were developed or had major enhancements made to them. Departmental system activities cost $11.8 million, representing a 10 per cent reduction from the previous year.

Over the last five years, Electronic Data Processing (EDP) systems have been developed using common technology and standard data keys. Data can now be accessed and maintained in one place and shared to meet operational and decision support needs. There has been significant success with the integration of all subsystems of the Mineral Revenues System that support Mineral Revenues management; the Land Status Automated System that supports the management of the Crown's mineral rights (subsurface); and the Timber Records Enumeration and Evaluation System that supports the disposition and harvest of the province's timber resources.

The benefits of this approach have been:

- the ability to continue to collect the Crown's share of non-renewable revenues at a time of rapid policy change, and to support the timely introduction of new incentive programs;
- to support the province's negotiations concerning a countervailing duty on Canadian softwood lumber exported to the United States;
- sharing of land data with land management organizations in the public and private sectors. This has improved the effectiveness of land management in the province while reducing the need for new systems development;
- the increase of departmental revenue transactions and services to the public while reducing operating costs; and
- the reduction of systems development and maintenance costs by an estimated 50 per cent as compared to industry standards.

The two departments will continue this strategic thrust with development initiatives to fully integrate the accounts receivable system with the other revenue and resource management systems. The development of an interface with the Natural Resources Information System will also continue to allow maps to be produced in support of decision making. In 1986, a pilot project to test the effectiveness of regional access to the departments' automated data assets was undertaken. As a result of its success, access from all regional sites will be provided over the next two years.

Systems developments during the year included:

- the completion and implementation of the subsurface component of the Land Status Automated System. Computer tapes of subsurface data are now available to the public, to be followed shortly by tapes of surface data. This supports the Alberta Government's policy of providing electronic access to automated land data that are currently available to the private sector only in paper form;
- the continued development and implementation of components of the Mineral Revenues System; and
- the development and implementation of an interface to the government's central financial accounting system (DFS/CFS).

Financial Statements

ALBERTA ENERGY
Statement of Revenue
For The Year Ended March 31, 1987
(Unaudited)

	1986/87 ($000)	**1985/86** ($000)
Royalties		
Oil, conventional and synthetic, and products	$1 015 902	$2 759 704
Natural gas and products	1 097 180	1 805 934
Coal and other	8 357	14 193
	2 121 439	4 579 831
Rentals and Fees		
Oil and natural gas, and synthetic oil	77 011	84 615
Coal and other	2 959	3 304
	79 970	87 919
Crown Sales, Oil and Natural Gas Agreements	291 948	724 418
Mineral Taxes	96 292	188 673
Crude Oil Export Charges	(30)	78 354
Miscellaneous - Other	524	685
Gross Revenue	**2 590 143**	**5 659 880**
Less Incentive Programs		
Exploratory Drilling	(1 962)	30 595
Geophysical	(210)	13 597
Development Drilling Assistance	93 706	-
Well Servicing Assistance	50 000	-
Geophysical Assistance	27 623	-
	169 157	44 192
Net Revenue	**$2 420 986**	**$ 5 615 688**

Prepared by Financial Accounting Branch, Finance and General Services Division, September 03, 1987

ALBERTA ENERGY
Statement of Expenditures
For The Year Ended March 31, 1987
(Unaudited)

	1986/87 ($000)	1985/86 ($000) (Restated)
Financial, Administration and Policy and Advisory Services Divisions		
Finance and General Services	$ 2 470	$ 2 433
Automated Information Systems	4 591	1 012
Human Resources	694	656
Internal Audit	111	117
Policy Analysis and Planning	3 382	3 257
	11 248	7 475
Other Divisions		
Mineral Resources	7 369	9 357
Mineral Revenues	8 188	9 199
Scientific and Engineering	9 704	4 724
Alberta Petroleum Incentives	7 536**	7 740
	32 797	31 020
Executive Offices	1 180	1 230
Special Warrants and Special Programs		
Alberta Small Producers Assistance Program	135	-
Ethane Feedstock Price Equalization Program	13 643	48 206
Syncrude Oil Expansion Program	9 362	-
	23 140	48 206
Total Expenditures	**68 365**	**87 931**
Less expenditure recoveries:		
Alberta Petroleum Incentives Program	6 613**	7 669
Other	161	803
Net Expenditures	**$ 61 591**	**$ 79 459**

***See Note 4*

Prepared by Financial Accounting Branch, Finance and General Services Division, September 03, 1987

ALBERTA ENERGY
Notes to the Financial Statements
For the Year Ended March 31, 1987

Note 1 - Comparative Figures

The 1985/86 figures have been restated where necessary to conform to the 1986/87 presentation.

Note 2 - Statement of Revenue

The Department has a liability of $216 999 066 in respect of earned credits through the Exploratory Drilling Assistance Program. The EDAP credits will be used to reduce royalties payable to the Crown on production after March 31, 1987. This liability will be legally enforceable after March 31, 1987.

Note 3 - Statement of Expenditures

Alberta Oil Sands Equity, Alberta Oil Sands Technology and Research Authority and Alberta Petroleum Marketing Commission are not included in the Statement of Expenditures.

Note 4 - Statement of Expenditures

Costs of $ 923 372 incurred by Alberta Petroleum Incentives Program on behalf of Alberta Energy have been eliminated from the transfer from the General Revenue Fund. The costs are related to the administration of the following programs:

	1987	1986
Personnel Services	$ 61 287	$ 70 619
Well Servicing Assistance Program	481 811	N/A
Exploratory Development Assistance Program	253 642	N/A
Development Drilling Assistance Program	79 739	N/A
Geophysical Assistance Program	46 893	N/A
	$ 923 372	**$ 70 619**

Note 5 - Special Warrants and Special Programs

Ethane Feedstock Price Equalization Program is administered by the Alberta Petroleum Marketing Commission for Alberta Energy.